



Accelerating your move to multi-core computing

See how the Intel® Dual-Core HPC Cluster and
Intel® Remote Access Service can help your organization
take advantage of the next digital revolution.



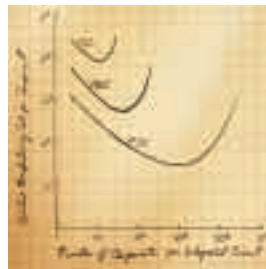
Intel's advances in multi-core microprocessor architectures are ushering in a new era of rapid performance improvements, increased power efficiency, and rising system capabilities.





The multi-core inflection point.

In 1965, Intel co-founder Gordon E. Moore observed that transistor counts were doubling regularly, and predicted that that doubling could continue for the foreseeable future. Intel's commitment to fulfilling that prediction has brought steady increases in clock frequency for four decades.



In 1965, Gordon Moore sketched out his prediction of the pace of silicon technology. Decades later, "Moore's Law" remains true, driven largely by Intel's unparalleled silicon expertise.

Now, we are at a strategic inflection point in which multi-core architectures promise to bring even greater multiples of processing power. Multi-core architectures are the latest innovation in Intel's continuing commitment to enhance computing performance and capability. Going beyond increases in clock speed, Intel® multi-core architecture puts multiple computational engines—or execution cores—into a single processor.

Multi-core processing provides dramatic increases in computing performance. It does so while reducing power consumption, improving compute density, and providing fine-grained flexibility in allocating processor resources.

This is an exciting shift for high-performance computing (HPC). HPC centers that adopt dual-core architectures will be able to acquire significantly more computing capacity for a given budget, opening the door to breakthroughs in scientific and technical computing challenges. These centers will also be able to reduce power, heat, and space consumption, stretching their operation budgets by concentrating more computing power into fewer and smaller servers. Whereas the November 2005 TOP500* list contained only a handful of 256-node systems, as of June 2006, we can expect to see a great many such systems.



Moving quickly to exploit advancing technology.

To accelerate the industry move to Intel multi-core architecture, Intel has developed its largest HPC testbed cluster ever, and is making the system available through the Intel® Remote Access Service to independent software vendors (ISVs), original equipment manufacturers (OEMs), and HPC user organizations.

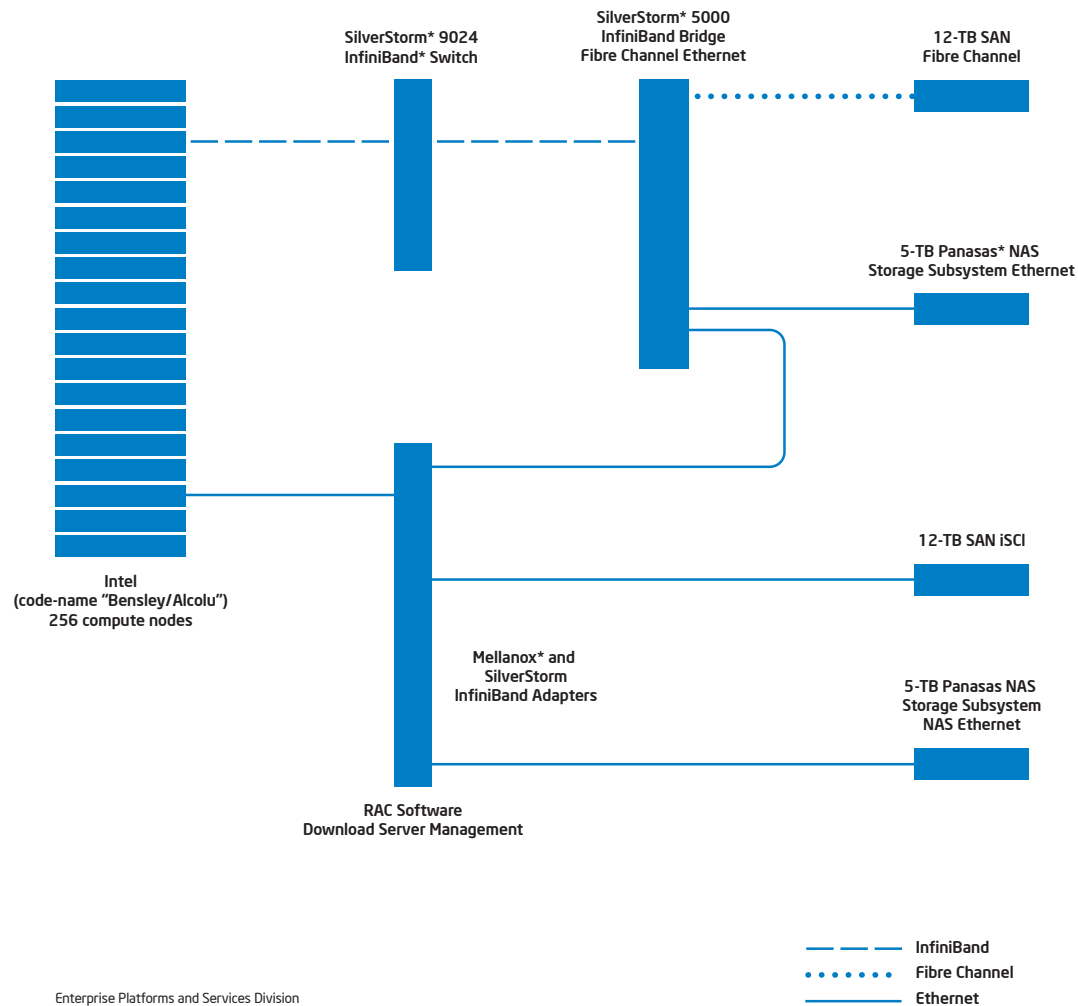
The Intel® Dual-Core HPC Cluster is powered by Intel's next-generation Dual-Core Intel® Xeon® processor-based enterprise server platform (code-named "Bensley") and provides 12.28 teraflops of theoretical peak performance. Balancing the processors' high performance are advances in memory access and I/O that enhance throughput

and make the cluster exceptionally well-suited to demanding HPC applications such as computational fluid dynamics and crash simulations. The system is based on a next-generation Intel® Server Board (code-named "Alcolu") in a rack-mount form factor.



Powerful and cost-effective servers run the broadest range of applications.

InfiniBand* and Intel® I/O Acceleration Technology provide high-speed access to external storage.



Among the noteworthy features of the Intel Cluster:

- 256 nodes, each having two next-generation, power-optimized, Dual-Core Intel® Xeon® processors. With four cores per node, this yields 1,024 cores total in the cluster and up to double the performance of current Intel single-core platforms.
- Two 1,066-MHz front-side buses with separate memory controllers to provide optimal bandwidth between processors and memory, interconnect, and other I/O
- Eight fully buffered DIMMs per node and a total of 2 terabytes (TB) of system RAM to improve memory bandwidth and capacity
- InfiniBand* high-speed, standards-based interconnects between nodes in the cluster
- Intel® I/O Acceleration Technology (Intel® I/OAT) to enhance throughput by reducing the I/O workload on the processor while accelerating the flow of data
- Demand Based Switching for reduced platform power consumption
- Supported by Intel's rich development environment, including high-performance compilers and performance libraries, as well as toolkits to assist with clustering, threading, and performance analysis

Intel's most powerful test and development environment.

The Intel® Dual-Core HPC Cluster offers a protected, dedicated development environment with the latest performance and stability-based high-speed interconnects. Accessible from around the world via IPSEC or SSL-based Virtual Private Network and/or Secure Sockets Protocols, resources are available based on time-slot scheduling for up to two weeks at a time. Take advantage of Intel's latest optimized software stack, or load your own.



Experience the power— and speed your success.

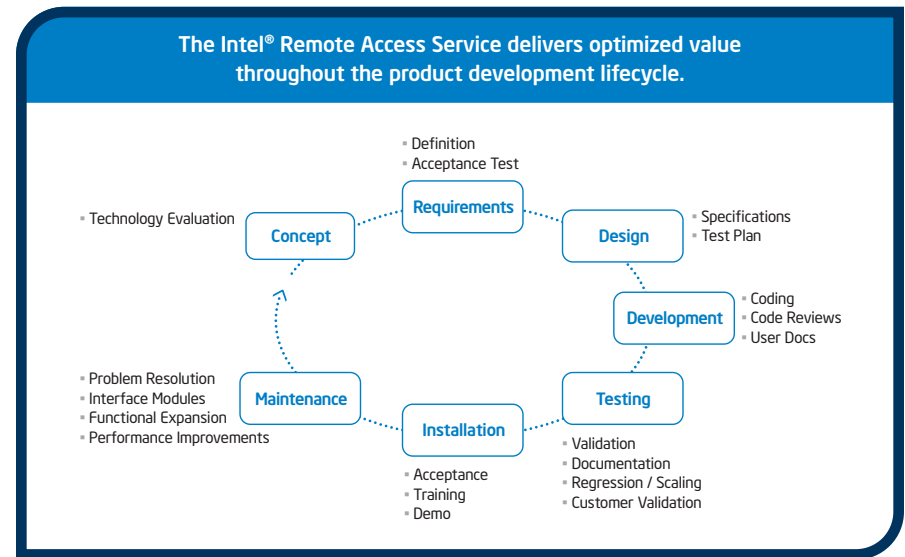
Whether you are an ISV, OEM, corporate IT department, university, or research institution, the Intel Dual-Core HPC Cluster provides an opportunity to experience the power of advanced dual-core processing firsthand and test-drive your software on Intel's largest test system ever. Accessing this next-generation computing environment from your own facilities, you can test, develop, and demonstrate applications and platforms, and accelerate your transition to Intel multi-core computing.

OEMs and ISVs

- Deliver exciting applications designed to take full advantage of emerging technologies
- Shorten the development lifecycle and accelerate time-to-market
- Extend your development budget
- Maintain a competitive edge with early access to pre-production and production development platforms
- Minimize latency and enjoy fast, reliable connectivity
- Win sales by demonstrating and/or benchmarking your software products to potential customers

Corporate IT departments, academic and research institutions

- Accelerate scientific advances through early access to next-generation platform technologies
- Validate platform configurations and total cost of ownership before purchase
- Reduce operational costs through access to a wide range of software-enabling technologies over industry-standard, encrypted Internet security protocols
- Explore Intel software tools before purchase
- Port key research codes and benchmark their performance



Make Your Move

Accelerate your transition to Intel dual-core processing. Talk with your local Intel representative, and visit us on the web to learn more.

Interested in accessing the Intel® Dual-Core HPC Cluster or other advanced Intel® technologies through the Intel® Remote Access Service?

www.intel.com/software/ra

Intel multi-core architectures and other Intel platform technologies:

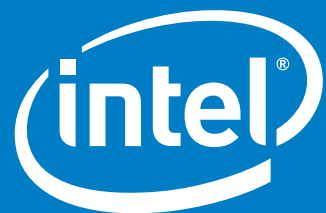
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